

A REVISION OF THE CHIROMYZINI (DIPTERA).

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(Plates xxix.-xxx.)

Miss Irwin Smith's paper on the larva of *Metoponia rubriceps* Macquart, has made it necessary to study the genus and its allies in a more comprehensive manner than has been done hitherto, so that the position of the species may be adequately determined and the genus may be distinguished from the allied genera of the world.

The literature on the group of *Stratiomyidae*, here placed in the tribe Chiromyzini, shows considerable disagreement of ideas concerning the relative value of characters hitherto used for grouping the species into genera, so the system independently adopted here was based on the study of Australian forms only.

Attention is drawn to the fact that various genera hitherto proposed were founded upon venation characters, in accordance with the usual custom of grouping the *Stratiomyidae*, but such a treatment is not only impossible with the species under discussion, as shown in this study, but also will have to be abandoned as a main factor in grouping other species of *Stratiomyidae* before a natural classification of the family can be attained.

It is scarcely to be expected that any alteration will be made upon the principles underlying the present scheme of treating the genera under the tribe Chiromyzini, but it is possible that the genus *Chiomyza* is divisible into two groups, formed according to whether the eyes of the male are contiguous or separated, but this development, for obvious reasons, cannot be undertaken in this paper.

A list of species placed in this tribe is as follows:—

METOPONIA Macquart. (Synonyms.—*Inopus* Walker; and *Criptoheris* White.)

rubriceps Macquart. [Syn.—*flavicaput* Walker, *despectus* Walker, *herbescens* White]. (New South Wales, Victoria and ? Tasmania), *gemina*, n.sp. (New South Wales).

CHIROMYZA Wiedemann. (Synonyms.—*Xenomorpha* Macquart; ? *Nonacris* Walker; *Hylorus* Philippi; *Lagarus* Philippi; *Lagarinus* Enderlein; and *Metoponia* White, *nce* Macquart.)

vittata Wiedemann (Brazil), *achracea* Wiedemann (South America), *fusca* Wiedemann (Central and South America), *leptiformis* Macquart (Brazil), *australis* Macquart (Australia), *prisca* Walker (Tasmania), ? *transsequa* Walker (South America), *vicina* Bigot (? Australia), *kronei* Philippi (Chile), *pauseni* Philippi (Chile), *paradora* Enderlein (Chile).

UNCERTAIN GENERIC POSITION.

grandicornis Hardy (*Xenomorpha*), (Tasmania).

BOREOIDES, n.gen.

subulatus n.sp. (New South Wales, Victoria, and ? Tasmania).

ALLOGNOSTA Osten-Sacken. (Synonyms.—*Metoponia* Loew, *nec* Macquart and *Anacanthoberis* Brunetti.)

fuscitarsis Say [Syn.—*dorsalis* Say, *brevis* Walker, *lata* Walker, *pallipes* Wiedemann] (United States of America), *obscuriventris* Loew (Canada), *similis* Loew (United States of America), *vagens* Loew [Syn.—*inermis* Brunetti] (Europe and Asia), *crassitarsis* de Meyere (Java), *crassa* de Meyere (Java), *barbiellinii* Bezzi (Brazil), *assamensis* Brunetti (Assam).

Of the above twenty-three species the first fifteen belong to the Chiromyzini, and the eight species under the genus *Allognosta* probably belong to the same tribe.

I desire to record my thanks to Mr. J. A. Kershaw, of the National Museum, Melbourne, for the loan of specimens of Chiromyzini under his charge, which included the manuscript species, *Boreomyia subulata* Walker also to Miss Irwin Smith and Dr E. W. Ferguson who have afforded me every opportunity to examine specimens in their collections.

Tribe CHIROMYZINI.

Definition.—The antennae are situated low down on the head, are short, and are composed of three short joints, the third of which consists of several segments which are fused or almost fused, so that they are found not to form independent segments when dissected; the face recedes. The scutellum is without spines and its contour is smooth. The abdomen contains seven segments*: the male has the genitalia exposed, and the female has a protensive ovipositor containing a pair of cerci. The wings, when at rest, lie horizontally and partly overlap above the abdomen; they have a venation which is variable in each species; at most the wings contain a full complement of veins occurring in the family *Stratiomyiidae*, or certain veins consisting of the upper branch of the cubital fork, the third posterior vein, and the cross-vein between the second and fourth posterior veins may be partly or completely obsolete. The fifth posterior vein issues from the second basal cell and joins the anal vein considerably before it reaches the wing margin. The female is apterous in one genus.

Notes.—The tribe Chiromyzini is adopted here as the characters of the genera placed under it are not of sufficient importance to warrant their isolation from the subfamily *Beridinae*. Osten-Sacken made a family of the genus *Chiromyza*, and Kertész, in his catalogue, treats it as a typical form of a subfamily under the family *Coenomyiidae* but does not associate the genus *Allognosta* with it. The genus *Allognosta* is not known to me but judging from the characters published it appears that the species placed under it belong to the tribe defined above.

Key to the genera of the tribe Chiromyzini.

1. The eyes separated in both sexes; the two basal joints of the antennae equal in length, the third joint of the male four times the length of the second and of the female only twice the length; the male with wings, the female apterous *Boreoides*, n.gen.

*All the works dealing with *Beridinae* seen by the writer state that the abdomen has seven visible segments; actually, however, there are eight visible in the female, not including the apical one, usually referred to as the ovipositor and which contains the cerci.

- Both sexes with wings, other characters variable.2.
 2. The male with contiguous or separated eyes; the antennae with the basal joints about equal in length, the third joint about twice the length of the second.

Chiromyza Wiedemann.

- The male with contiguous eyes; the antennae with the basal joints variable in proportion, the third joint four times the length of the second.

Metoponia Macquart.

Genus METOPONIA Macquart.

Metoponia, Macquart, Dipt. Exot., suppl. 2, 1847, p. 28; Walker, List Dipt. Brit. Mus., v., suppl. 1, 1854, p. 112; Osten-Sacken, Berl. Ent. Zeit., xxvii., 1883, p. 297; White, Proc. Roy. Soc. Tas., 1914, p. 46; and 1916, p. 260; Hardy, Proc. Roy. Soc. Tas., 1920, p. 34.

Inopus, Walker, Ins. Saund. Dipt., 1850, p. 2; List Dipt. Brit. Mus., v., suppl. 1, 1854, p. 112; Osten-Sacken, Berl. Ent. Zeit., xxvii., 1883, p. 296.

Cryptoberis, White, Proc. Linn. Soc. N. S. Wales, xli., 1916, p. 73.

Definition.—The eyes are contiguous in the male and widely separated in the female. The antennae do not exceed the length of the head; the first joint may be $\frac{2}{3}$ the length of the third or considerably less, the second joint is short; the third joint is rather long, at least four times the length of the second. The abdomen is depressed in both sexes, and normal in shape. The venation is variable; the radial vein may issue from the first basal cell, or it may branch off the cubital vein at a little distance from the basal cell; the upper branch of the cubital vein is usually present, but may be absent in isolated specimens; the discal cell has three posterior veins issuing from it, all of which reach the wing border. The first and second posterior veins may issue separately from the discal cell or from a point, or they may be stalked; these characters are variable within a species. The third posterior vein is never present; the fourth is normal; the fifth issues from the second basal cell and joins the anal cell considerably before it reaches the wing margin.

METOPONIA RUBRICEPS Macquart. (Plate xxix., figs. 5, 6.)

Metoponia rubriceps, Macquart, Dipt. Exot., suppl. 2, 1847, p. 28, Pl. i., fig. 4; and suppl. 3, 1848, p. 15; Walker, List Dipt. Brit. Mus., v., suppl. 1, 1854, p. 113; Osten-Sacken, Berl. Ent. Zeit., xxvii., 1883, p. 297; White, Proc. Roy. Soc. Tas., 1914, p. 46; and Proc. Linn. Soc. N.S. Wales, xli., 1916, p. 75; Hardy, Proc. Roy. Soc. Tas., 1920, p. 34, text-fig. 1; Smith, Proc. Linn. Soc. N.S. Wales, xlv., 1920, p. 505, Pl. xxvii.-xxviii.

Chiromyza flavicaput, Walker, Ins. Saund. Dipt., 1852, p. 163.

Cryptoberis herbescens, White, Proc. Linn. Soc. N.S. Wales, xli., 1916, p. 97, text-fig. 1.

? *Inopus despectus*, Walker, Ins. Saund. Dipt., 1850, p. 2, Pl. i., fig. 7; List Dipt. Brit. Mus., v., suppl. 1, 1854, p. 112 (*dispectus*).

Synonymy.—The reasons for considering that *Cryptoberis herbescens* White is identical with *Metoponia rubriceps* Macquart have been dealt with in my paper in the Proceedings of the Royal Society of Tasmania, 1920, and no further comment is needed here. The illustration of *Inopus despectus* Walker shows that the upper branch of the cubital vein is missing, which character is rare in *Metoponia rubriceps*, but the other characters agree so well with this common species that the generic position is beyond dispute; the basal joint of the antennae, which

is about as long as the third, and the radial vein issuing from the first basal cell, agree with this species.

Characters.—This species, in which the female is usually black and the head red and the male brown or somewhat blackish, never with red, has the antennae with the first and second joints together about equal in length to the third, the first rather long, and the second joint about one quarter the length of the third. The radial vein invariably issues from the first basal cell.

Description.—♂. The head is black, the eyes are contiguous and have a little pubescence. The antennae are black, the first joint is long, about three times the length of the second, the second joint is about as long as broad, the third joint is four times the length of the second. [The text-fig. 1. in the Proc. Roy. Soc. Tasm., 1920, p. 35. shows the antennae drawn from a micro-slide.] The thorax and scutellum are black and have some black pubescence and depressed yellowish tomentum. The abdomen is black and contains denser pubescence; there are seven segments and exposed genitalia which conform in shape with those of other species of *Beridinae*. The anterior coxae are black, and the remainder of the legs are yellowish, slightly stained fuscous. The wings are obscurely fumed and the halteres are similarly coloured.

♀. The head is red with some short pubescence, the ocelli and the eyes are black; the latter have a little pubescence. The antennae are black, sometimes red at the base, and conform in proportions to those of the male. The thorax and scutellum are black with short pubescence, and sometimes tracings of lighter markings can be seen laterally. The abdomen is depressed, black, and usually with a thin light border at the extreme lateral edges. There are seven abdominal segments, the ovipositor (the eighth segment) bearing a pair of cerci; in the specimen described and illustrated here the ovipositor contains a small, inflated, yellow, ventral sack which can be detected bulging on each side. The abdomen contains short pubescence. The legs are variable in colour, they are usually reddish and much stained with black; in the specimen illustrated the anterior coxae are red—the intermediate and posterior coxae black; the trochanters are reddish, the basal half of the femora is black, the apical half red; the middle third of the tibiae is black, the base and apex reddish; the tarsi have the base of the first and second joints red, the pulvilli and the basal half of the claws red, the remainder black. The wings are rather strongly fumed and the halteres are similarly coloured.

Hab.—New South Wales: Sydney. (51 ♂, 20 ♀.) Specimens have also been seen from Victoria, but are not available for study at the time of writing this paper. Macquart adds Tasmania as a locality, but specimens from this State do not seem to be represented in recent collections.

METOPONIA GEMINA, n.sp. (Plate xxix., figs. 1-4.)

Characters.—In this species the female has a red head and the remainder is usually blackish, with a brownish scutellum; the male is brown or blackish with a lighter brown scutellum, and also often the second and third abdominal segments are of a lighter brown dorsally. The first joint of the antennae is but little longer than the second, and the third joint four times the length of the second; the radial vein of the wing branches from beyond the base of the cubital vein. The head differs in shape from that of *M. rubriceps* when seen dorsally, the face appears to be more prominent.

Description.—♀. The head is red, with the ocellar tubercle and the eyes

black. Seen dorsally the head is conspicuously more prominent between the eyes than in *Metoponia rubriceps* Macquart. The first joint of the antennae is about twice the length of the second, and the third joint is missing.

The thorax, scutellum and abdomen are as in *M. rubriceps*; they are black with a dull yellowish tinge on the post-alar callus, which character is also often present in *M. rubriceps*; this colour extends on to the scutellum and forms an apical margin in the holotype only.

The legs, as in *M. rubriceps*, are red and much stained with black.

The wings are fuscous and have the radial vein branching from the base or slightly beyond the base of the cubital vein, which is forked at, or beyond, the middle of its length. The first and second posterior veins issue from the discal cell separately.

♂. This sex is blackish in colour and has a yellowish tomentum; the eyes are contiguous, the ocellar and antennal triangles are very small, the latter reddish; the epistoma is yellowish. The antennae are reddish or yellowish and much stained with fuscous. Seen dorsally, the shape of the head anteriorly is arched and not flat as in *M. rubriceps*.

The thorax is black and has depressed yellow hairs, the humeral and post-alar calli and the scutellum are ochraceous.

The abdomen is black, but the first and second segments may contain a conspicuous area of yellowish brown; the genitalia are yellowish.

The legs are yellowish and similar to those of the male of *M. rubriceps*.

The wings are fuscous and have the radial vein branching from near the base to about one-sixth the length of the cubital vein which is forked at about two-thirds of its length. The first and second posterior veins issue from the discal cell separately or from a point, or they may be stalked.

Length.—♂. 6–7 mm.; ♀. 10 mm.

Hab.—New South Wales: Leura, Blue Mountains, March, 1920, collected by Dr. A. Maclean.

Type.—The holotype ♀ and the allotype ♂ were presented to the Australian Museum by Dr. E. W. Ferguson. The paratypes, (3 ♂, 1 ♀) are in Dr. Ferguson's collection.

Genus *CHIROMYZA* Wiedemann.

Chiromyza, Wiedemann, Nova Dipt. Gen., 1820, p. 19; and Auss. zweifl. Ins., i., 1828, p. 237; Bigot, Ann. Soc. Ent. France, (5), ix., 1879, p. 185.

Xenomorpha, Macquart, Dipt. Exot., i., 1, 1838, p. 193; and i., 2, 1839, p. 190; Hardy, Proc. Roy. Soc. Tas., 1920, p. 37.

Lagarus, Philippi, Verh. z.-h. Ges. Wien., xv., 1865, p. 728 (preoccupied); Osten-Sacken, Berl. Ent. Zeit., xxvi., 1882, pp. 366, 368 and 380.

Hylorus, Philippi, *loc. cit.*, p. 728; Osten-Sacken, *loc. cit.*, pp. 368 and 380.

Lagarinus, Enderlein, Zool. Anz., xlii., 1913, p. 251; Kroeber, Wytsman's Gen. Ins., fasc. 161, 1914, p. 13.

Metoponia, White, (*nec* Macquart), Proc. Linn. Soc. N.S. Wales, xli., 1916, p. 74.

? *Nonacris*, Walker, Ins. Saund. Dipt., i., 1850, p. 7; Osten-Sacken, Berl. Ent. Zeit., xxvii., 1883, p. 296.

Synonymy.—The genus *Chiromyza* Wiedemann was founded upon a Brazilian

species, *C. vittata*, in which the upper branch of the cubital fork and the third posterior vein are obsolete, and the discal cell is complete.

The genus *Xenomorpha* Macquart was founded upon a species, *X. leptiformis*, in which only the upper branch of the cubital fork was obsolete, that is, the third posterior vein was present, otherwise the characters are identical with Wiedemann's species. Australian specimens show variations in which the upper branch of the cubital vein may be present or absent and the discal cell may be partly open, and finally the third posterior vein may be absent, but such an occurrence is rare.

The genus *Hylorus* Philippi was founded on a Chilean species, *H. krausei*, in which the third posterior vein is absent. Australian specimens conform to this and individual specimens with the discal cell partly open are rather common, thus showing a connecting link with *Lagarus*; the upper branch of the cubital fork is also sometimes absent and in this way unites *Lagarus* with the typical *Chiomyza*.

The genus *Lagarinus* Enderlein was proposed for a Chilean species, *L. paradoxus*, which conformed in the characters to *Lagarus* (preoccupied). Enderlein placed *Lagarus* as a synonym of his new genus *Lagarinus* and erroneously removed the group to the family *Scenopidae*. Krombein copied Enderlein's description and appended it to the end of his revision of the genera of *Scenopidae* without comment.

The characters of the genus *Metoponia*, given by White, conform to the *Xenomorpha* of Macquart.

The following key will make the relation between these various species clear.—

1. Species with four posterior veins. 2.
- Species with five posterior veins, the third of which is stunted *Xenomorpha*.
2. The discal cell open, all traces of the cross vein closing the discal cell obsolete.
Lagarus and *Lagarinus*.
- The discal cell closed, or at least the vein that closes the discal cell is indicated. 3.
3. The cubital vein forked. *Hylorus*.
- The cubital vein simple. *Chiomyza*.

These differences of character are variations that grade into each other and are of less than specific value.

In the original description, the genus *Nonacris* Walker is described as having the antennae seven segmented and the second joint much longer than the first, but Osten-Sacken states that the type, *N. transequa*, from South America, appears to be a *Chiomyza* as he could not find any difference.

Definition.—The eyes are contiguous or separated in the male and widely separated in the female; the antennae are shorter than the head, the first joint is short, the second about the same size, and the third scarcely exceeds the length of the two basal joints united; a species described as *Xenomorpha grandicornis* Hardy, has the third joint considerably longer and does not belong to this genus as defined here. The abdomen of the male is depressed; the genitalia conform to those of other genera of the *Beridinae*. The female has the basal segments of the abdomen distended and the apical segments attenuated; there are four distended segments and three narrow elongate segments, at the apex of which is the protensive ovipositor, the true eighth segment, which bears a pair of cerci. Both sexes have wings; the venation is very variable within a species, more so than in

the genus *Metoponia*. The radial vein invariably issues from the first basal cell; the upper branch of the cubital vein may be present or obsolete; the discal cell may be open or closed and is short; three posterior veins issue from the discal cell and often another, but stunted vein, the true third posterior vein, is also present; the first and second posterior veins may issue from the discal cell separately, or from a point, or they may be stalked; these characters are variable within a species. The fifth posterior vein issues from the second basal cell and joins the anal vein considerably before it reaches the wing margin.

CHIROMYIA VITTATA Wiedemann.

Chiromyia vittata, Wiedemann, Nova Dipt. Gen., 1820, p. 20, fig. 8, ♀. (For further references see Kertész, Cat. Dipt., iii., 1908, pp. 144-5.)

Note.—Schiner gives *X. leptiformis* Macquart as a synonym of this species.

CHIROMYZA OCHRACEA Wiedemann.

Chiromyza ochracea, Wiedemann, loc. cit., p. 20, ♂. (For further references see Kertész, loc. cit.)

CHIROMYZA FUSCANA Wiedemann.

Chiromyza fuscana, Wiedemann, Dipt. Exot., 1821, p. 115, ♀. (For further references see Kertész, loc. cit.)

CHIROMYZA LEPTIFORMIS Macquart.

Xenomorpha leptiformis Macquart, Dipt. Exot., i., 1, 1838, p. 193, Pl. xxiii., fig. 1 (♀); and i., 2, 1839, p. 190 (♂); Walker, List Dipt. Brit. Mus., v., suppl. 1, 1854, p. 66.

Note.—Schiner gives this as a synonym of *C. vittata* Wiedemann.

CHIROMYZA AUSTRALIS Macquart. (Plate xxx., figs. 12-16.)

Xenomorpha australis, Macquart, Dipt. Exot., suppl. 4, 1850, p. 54, Pl. iii., fig. 7; Williston, Trans. Ent. Soc. Philad., xv., 1888, p. 244; Hardy, Proc. Roy. Soc. Tas., 1920, p. 38, text-fig. 2.

Characters.—This species has already been fully described, but it is subject to considerable variation in wing venation and colour markings. The eyes are separated in both sexes; the wings have a very complete venation, but the upper branch of the cubital fork may be partly or completely absent; the third posterior vein is almost invariably indicated by a stunted vein which is variable in length, and in one specimen the cross-vein between the second and third posterior veins is obsolete. The illustration is taken from one of the series of specimens from Gisborne already described by me.

Macquart described the male as having rather thick posterior tarsi, which character applies better to *Ch. prisca*, whilst the drawing shows the eyes separated in the male, and a stunted third posterior vein which conforms to the species identified here.

Hab.—New South Wales and Victoria. (6 ♂, 8 ♀.)

? CHIROMYZA TRANSEQUA Walker.

Nonacris transequa, Walker, Ins. Saund. Dipt., 1852, p. 7.

Chiromyza transequa, Osten-Sacken, Berl. Ent. Zeit., xxvi., 1882, p. 368.

CHIROMYZA PRISCA Walker. (Plate xxix., figs. 7-11.)

Chiromyia prisca, Walker, Ins. Saund. Dipt., 1852, p. 162.

Metoponia prisca, Hardy, Proc. Roy. Soc. Tas., 1920, p. 36.

Characters.—Eyes contiguous in the male, separated in the female; the wings have a variable venation, in which the upper branch of the cubital vein is present or obsolete, the first and second posterior veins may be stalked, or issue from the discal cell from a point or independently; the third posterior vein is obsolete; the transverse vein between the second and fourth posterior veins may be incomplete, making the discal cell partly open, and in one case which is illustrated (Plate xxix., fig. 7) the second basal cell is also partly open by a similarly incomplete cross-vein. In the male the posterior tarsi are thickened.

Note.—Walker's type from Tasmania is evidently a male and is not adequately enough described for its identity to be positively determined; the only species known from that State that appears to approach Walker's description was subsequently identified and described as *Metoponia prisca*, but the identification is not a satisfactory one.

CHIROMYZA VICINA Bigot.

Chiromyza vicina, Bigot, Ann. Soc. Ent. France, (5), ix., 1879, p. 200 (♀).

Metoponia vicina, Kertész, Cat. Dipt., iii., 1908, p. 145.

Note.—The position of this species is open to doubt, but as it was described from a female, it cannot belong to the genus *Boreoides*, and its colour does not agree with the known species under the genus *Metoponia*. The inadequate description reads like that of a typical female *Chiromyza*, and its habitat is queried Australia.

CHIROMYZA KRAUSEI Philippi.

Hylorus krausei, Philippi, Verh. z.-b. Ges. Wien., xv., 1865, p. 728, Pl. xxvi., fig. 33 (♂); Osten-Sacken, Berl. Ent. Zeit., xxvi., 1882, p. 368; Hunter, Trans. Amer. Entom. Soc. Philad., xxvii., 1901, p. 133.

CHIROMYZA PAUSLENI Philippi.

Lagarus pausleni, Philippi, Verh. z.-b. Ges. Wien, xv., 1865, p. 728 (♀); Hunter, Trans. Amer. Ent. Soc. Philad., xxvii., 1901, p. 132.

Lagarinus pausleni, Enderlein, Zool. Anz., xlii., 1913, p. 253.

CHIROMYZA PARADOXA Enderlein.

Lagarinus paradoxus, Enderlein, Zool. Anz., xlii., 1913, p. 252, figs. 1 and 2 (♂).

Species of uncertain generic position.

XENOMORPHA GRANDICORNIS Hardy.

Xenomorpha grandicornis, Hardy, Proc. Roy. Soc. Tas., 1920, p. 39, text-fig. 3.

Genus BOREOIDES, n.gen.

Boreomyia, Walker, MS. name.

Definition.—The eyes are separated in both sexes; the antennae have the two basal joints of equal length and the third joint about twice the length of the basal joints united in the male, and about the same length as the basal joints

united in the female. The abdomen is depressed in the male, and in the female the four basal segments are distended and the apical segments attenuated. The wings of the male contain a complete or almost complete venation; the upper branch of the cubital fork and the stunted third posterior vein may be absent. The female is apterous.

Etymology.—A female specimen in the National Museum, Melbourne, bears a label in Walker's handwriting identifying the species as *Boreomyia subulata*, and, in consequence, the species has been rather well known under that name. It appears that the name has not been published, and Dr. Ferguson informs me that he failed to find a specimen of the species in the British Museum, on which account it is reasonable to suppose that the specimen labelled by Walker and now before me, was intended to be the type of a new species. The name *Boreomyia* is preoccupied by *Boriomyia* Banks, 1906, a North American Neuropteran of the family *Hemerobiidae*, and, moreover, the strict meaning of the name, is scarcely applicable to the species under discussion. *Boreomyia* would mean "northern fly" according to its derivation, and this does not appear to be the meaning intended by Walker, who evidently noted the shape superficially resembling the Panorpid genus *Boreus* and intended in his name to convey the meaning Boreus-fly. The name is modified here to *Boreoides*, meaning "like *Boreus*."

BOREOIDES SUBULATUS, n.sp. (Plate xxx., figs. 17-22.)

Boreomyia subulata, Walker, MS. name.

Description.—The female is much inflated and apterous; the male is winged, more or less uniformly coloured brownish, and is slender in build.

♂. The front is one fifth the width of the head, parallel-sided and bulges slightly; the ocellar tubercle is very slightly raised, and anterior to this a median depression reaches the antennae. The antennae have their two basal joints equal in length, and the third joint twice the length of the basal joints united, and obscurely annulated. The face is small and the oral aperture is shallow and wide, and beneath it can be detected the minute mouth between the small palpi. The thorax and scutellum are normal, the former often stained with fuscous. The abdomen is rather long and slender, depressed, and consists of seven segments. The exposed genitalia conform in shape to those of other species of the *Beridinae*. The legs are light brown in colour, long and slender.

♀. The front is about one-third the maximum width of the head, is uniformly wide, and bulges considerably. The ocellar tubercle is but slightly raised, and anterior to this there is a pair of large prominences divided by a deep median depression which reaches the base of the antennae; the front contains conspicuous yellowish pubescence anteriorly. The antennae are situated low on the head and close together; the two basal joints are about equal in length; the third joint is equal to the basal joints together; the apical half of the third joint is obscurely annulated and three or four divisions can be seen. The oral aperture is shallow and wide, and it contains a tubercle occupying a larger portion of its area; below the tubercle, a minute mouth can be detected between the small palpi.

The thorax anteriorly is as wide as the head, but widens considerably towards the abdomen; it is glabrous and shining, but contains a little golden tomentum dorsally. The scutellum is flattened so that it lies like a plate upon

the metanotum, which is also depressed but wrinkled, and separates the scutellum from the abdomen. Laterally the thorax is normal, and ventrally it is almost entirely concealed by the coxae. The wings and halteres are obsolete, but there are minute prominences indicating the position where these appendages should be.

The abdomen normally is large and distended, but in some specimens it is shrivelled and no larger than that of the head and thorax combined. There are four distended segments followed by three elongate narrow segments, at the apex of which the ovipositor (the eighth segment) protrudes and contains a pair of cerci. In all the specimens the abdomen shows tendencies to shrivel, and in some specimens dark bands are to be seen on the three basal segments and dark longitudinal stripes on the apical segments. In the holotype the apex of the first dorsal segment has a thin transverse apical band, the second and third segments have a broader central band and the fourth to seventh segments have a pair of black stripes. The ventre has tracings of corresponding bands and stripes more or less visible; in dark specimens these markings are more or less obliterated.

The legs are long and have their anterior coxae very broad, covering half the length on the ventral side and almost touching the intermediate coxae which are normal. The posterior coxae are situated at the distance of their own width from the intermediate coxae and are normal; the legs contain a minute pubescence.

Length.—♂, 8-10 mm.; ♀ 15-25 mm.

Hab.—There are 35 ♂ and 24 ♀ from New South Wales and Victoria. Victoria: the labelled specimens invariably indicate May as the month of occurrence and the localities are Western District, Myer's Creek, Brighton, Mordialloe and Portland; and Mount Buffalo, males only, taken by Miss Irwin Smith, 19th February, 1920. New South Wales specimens are from Mount Kosciusko, females only, taken by Dr. E. W. Ferguson, February, 1920; females from Bago Forest, in the Australian Museum, taken by C. Rosegger; and males labelled Moonbar and Kosciusko, 3000ft, taken by Helms in March, 1889, are also in the Australian Museum. Tasmania: specimens from this State taken on the summit of Mt. Wellington, and one taken by Mr. C. E. Cole near Bellerive, Hobart, undoubtedly belong to this species, but unfortunately they are not available for study at the time of writing this paper.

Type.—The holotype ♀ and the allotype ♂ are in the National Museum, Melbourne; paratypes will be found in various collections, including that of the Australian Museum.

Genus ALLOGNOSTA Osten-Sacken.

Metoponia, Loew, *nec* Macquart, Dipt. Faun. Sud. Afr., i., 1860, p. 1.

Allognosta, Osten-Sacken, Berl. Ent. Zeit., xxvii., 1883, p. 297; Bezzi, Dent. Ent. Zeit., 1908, p. 470; Coquillett, Proc. U.S. Nat. Mus., xxxvii., 1910, p. 505; Brunetti, Faun. Brit. Ind., Dipt. Braehy., i., 1920, p. 93.

Anacanthoberis, Brunetti, Rec. Ind. Mus., vii., 1912, p. 456.

Characters.—A definition of this genus has been published by Brunetti, 1920, who, apparently, based it on the two species known to him. The illustration given by Brunetti in the same work represents *A. ragans* Loew, and the figure of the antennae shows the third joint to be four times the length of the second; both the figure and the description give eight annulations to the third joint. The abdomen of the male is shown to be considerably wider than the thorax, but the

text states "slightly wider." The female specimen is described as having the sixth abdominal segment distinctly narrower than the fifth, and the seventh and eighth narrower than the sixth, which character is typical of the Chiromyzini.

The genus *Allognosta* can be distinguished from the genus *Metoponia* by the abdomen of the male which is wider than the thorax and also relatively shorter than in all other genera of the Chiromyzini.

In *Metoponia* there are only seven annulations to the third antennal joint (Macquart gives eight); in *Allognosta* these annulations are stated to be eight, but the character requires confirmation.

The following list contains the references to the original descriptions of the species placed under the genus *Allognosta* to which are added the references from works published subsequent to those given in Kertész's catalogue.

fuscitarsis, Say, Journ. Acad. Nat. Se. Philad., iii., 1823, p. 29 (*Beris*); Bezzi, Dent. Ent. Zeit., 1908, p. 474. [United States of America.]

dorsalis, Say, in Long's Exped. St. Peter's River, ii., appendix, 1824, p. 377 (*Sargus*)

pallipes, Wiedemann, Auss. Zweifl. Ins., ii., 1830, p. 41 (*Sargus*).

lata, Walker, List Dipt. Brit. Mus., i., 1848, p. 127; v., suppl. 1, 1854, p. 10 (*Beris*).

brevis, Walker, List Dipt. Brit. Mus., i., 1848, p. 127 (*Beris*); v., suppl. 1, 1854, p. 10 (*Beris*).

similis, Loew, Berl. Ent. Zeit., vii., 1863, p. 299, ♂ (*Metoponia*); Bezzi, Dent. Ent. Zeit., 1908, p. 474. [United States of America.]

obscuriventris, Loew, Berl. Ent. Zeit., vii., 1863, p. 299, ♀ (*Metoponia*); Bezzi, Dent. Ent. Zeit., 1908, p. 474. [Canada.]

vagans, Loew, Beschreib. Europ. Dipt., iii., 1873, p. 71 (*Metoponia*); Bezzi, Dent. Ent. Zeit., 1908, p. 474. Brunetti, Faun. Brit. Ind., Dipt. Brachy., i., p. 94, Pl. 1, figs. 25-26, ♂. [Europe, Asia.]

inermis, Brunetti, Ree. Ind. Mus., vii., 1912, p. 455, ♂. (? *Allognosta*—*Anacanthoberis*) [India.]

barbiellinii, Bezzi, Dent. Ent. Zeit., 1908, p. 472. [Brazil.]

crassitarsis, de Meyere, Tijdschr. Ent., lvi., suppl., 1913 (1914), p. 19. [Java.]

crassa, de Meyere, Tijdschr. Ent., lvi., suppl., 1913 (1914), p. 20. [Java.]

assamensis, Brunetti, Fauna Brit. Ind., Dipt. Brachy., i., 1920, p. 95. [Assam.]

EXPLANATION OF PLATES XXIX-XXX.

Plate xxix.

Figs. 1-4.—*Metoponia gemina*, n.sp. 1, female, from holotype; 2, male, from allotype; 3, head of female holotype; 4, antenna from a paratype male.

Figs. 5-6.—*Metoponia rubriceps* Macquart. 5, head, male; 6, antenna.

Figs. 7-11.—*Chiromyza prisca* Walker. 7, female; 8, head of female seen anteriorly; 9, antenna of female; 10, male; 11, head of male seen anteriorly.

Plate xxx.

Figs. 12-16.—*Chiromyza australis* Macquart. 12, female; 13, head of female seen anteriorly; 14, antenna of female; 15, male; 16, head of male seen anteriorly.

Figs. 17-22.—*Boreoides subulata*, n.sp. 17, female; 18, head of female seen anteriorly; 19, antenna of female; 20, male; 21, head of male seen anteriorly; 22, antenna of male.